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"The universal blunder of this world," said Phillips Brooks, "is in thinking that there are certain persons put into the world to govern and certain others to obey.

"Everybody is in this world to govern and everybody to obey. There are no benefactors and no beneficiaries in distinct classes. Every man is at once both benefactor and beneficiary. Every good deed you do you ought to thank your fellow-man for giving you the opportunity to do it; and they ought to be thankful to you for doing it."

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American Electro-Platers' Society

Editors' Office, 4156 Botanical Ave., St. Louis, Mo.

Vol. 7 FEBRUARY No. 2

DETROIT NUMBER.

In order to secure suitable material for the "Review" we have requested some of the larger branches to assume responsibility for supplying the material for some one month. March and April numbers have been taken care of, but in the intervening time there was little material on hand for the February issue.

Without a promise of this kind we sent an "S O S" to Detroit Branch, with the result that we received such response that Detroit Number is now in your hand. We realize that if Detroit had been given time and had understood our move, that possibly it would have been necessary to enlarge size of issue.

The "do it now" spirit is admired.

The electro-plating industry, like many other industries is on the increase; we, as foremen in charge, have greater responsibilities than under former conditions and greater co-operation is desired.

We all feel that existing conditions give us time for only the absolutely essential things, and many times overlook small things that eventually assume large proportions. We are grateful when our attention is called to these and a remedy suggested, in fact, we are constantly looking to find something new to us, either by experimenting or reading, but regardless of how obtained, someone else has contributed their part. We believe that the contributor is the more satisfied of the two, and that more satisfaction comes from being of assistance to another, than to "hide a light under a bushel."

Our "Successful Methods" pages give every one of our members an opportunity to be a contributor, and we trust that these contributions from Detroit may just be a beginning.

Send them through your secretary or direct to us.

There is something that is decidedly peculiar about egotism. It is so peculiar a vice as really to be interesting. We are not saying that egotism is agreeable. It is disagreeable—intensely so—but at the same time it is worth studying a little.

LOVERING'S "MAGIC FLUID."

By E. G. Lovering, Detroit Branch.

For the past few years we have been using Hydrofluoric Acid to cure many of the evils that develop in our Nickel Baths. We have been obtaining such good results that we have named the H. F. carboy "The Magic Fluid."

We have about 20 nickel tanks in our department but at present half of them are standing idle, practically obsolete, for we have developed a method of producing as much work from one tank as we had formerly got from four; and when the Boss comes around for more production, we simply turn on the heat and shoot it out. And when we are turning out from ten to twenty thousand hub caps, twenty-five hundred lamp doors, and ten thousand reflectors and thousands of small parts daily, we are using up "some" E. M. F.

We have been going along for the past year (to use a hyperbole) with a smile up our sleeves, keeping our results to ourselves. For we still recall the criticism that was heaved upon us when we exposed our hand and let our "best trick out of the box" a few years back, for putting the "Combination Copper Plating and Cleaning Bath" in the spotlight we were accused of "Playing to the Gallery."

However, be that as it may, the encore is still ringing in our ears, and the plaudits of the thousands of platers who remarked, "Very good, Eddie," force us back to the center of the stage with the spotlight thrown on our act entitled "Magic Fluid."

"Fluo-Borate" is a combination which was brought to prominence in Lead Plating during the war. In 1908, E. F. Kern and F. G. Fabian conducted experiments on Fluo-Borate Nickel Solutions with fair results; but they did not carry their research work far enough.

We find that a Fluo-Borate in conjunction with nickel Sulphate ($Ni\ So_4$) under certain conditions gives excellent results. Hydrofluoric Acid (HF) has a strong affinity for hydrogen (H), forming hydrofluoric acid gas (H_2F_2). "Nickel sludge" as the platers call it, which is mostly nickel hydroxide. is easily dissolved in hydrofluoric acid. When we changed our nickel solutions over we dissolved all of the "sludge" from the bottom of the tanks with a strong shot of "Magic Fluid," then we worked it with a strong current on some old castings hung on the cathode rod. When we recovered from our amazement at the way in which it attacked and corroded the anodes, we immediately threw out all of the chlorine compounds in our laboratory, we were satisfied we would have no further use for them.

We found that an excess of fluorine or hydrofluoric acid (HF) did not decrease the cathode efficiency as an excess of sulphuric acid (H_2So_4) would; instead it increased the deposit.

The results were so startling that we tried the "Magic Fluid" on an electrolytic anode. It was attacked and corroded as readily as our standard anodes were. I hate to predict that the present commercial nickel anode will become obsolete but "Magic Fluid" is bound to bring forth many changes in nickel plating and this may be one of them.

"We have at times been the goat for a lot of nickel anodes with a hard scale on them, which were inactive in solution." Our method of treating such stubborn 'insolent' products of the anode foundry is to saturate our solution with 'Magic Fluid,' work it for awhile, then neutralize with magnesium carbonate ($MgCO_3$). When we do this we defy any anode, no matter how stubborn, that we can not make perform its duty, after it once becomes part of our equipment. In the old days we used to plead with them, with tears in our eyes, to go to work and give up their Nickel (Ni), but they simply gave up their (Ha Ha). Now it is our turn to laugh.

Making up a solution we take single nickel salts ($NiSO_4$), until bath stands 24° Be. We now add two ounces of boric acid B. (OH_3) to the gallon; we then add 1¼ ozs. hydrofluoric acid (HF), and have used as high as 2 ozs., to the gallon. We bring this up to a temperature of 60° C. and run using 6 volts and 500 amperes on 24 auto lamp doors, 10 sq. ft.; getting a deposit on each of 0.28 ozs. of nickel in five minutes.

We are getting more nickel on in five minutes in this solution than we got on before in the standard nickel solution in thirty minutes. I will not go into detail in regard to formulae or amperes per sq. ft., etc., at this writing, as I want to have this introduction bring out discussion and results that some of the members of Detroit Branch are getting from this solution. Also I am requested by Editor Williams to hurry this paper along and the Secretaryship of Detroit Branch was forced upon me when I had a cold and "no voice" in the matter. In addition, my time is very much taken up between here and Canada since July 1st.

Now, bombard me with all the criticisms that all your long range guns can shoot, I am UNAFRAID, my army record is well known (locally) and I am willing to "go over the top" and on to Victory with "MAGIC FLUID."

"I am the Master of my Fate,
I am the Captain of my Soul."

E. G. LOVERING.

NOTE—It is my desire that the above article remain the exclusive property of the American Electro-Platers' Society and that it be published only in the publication known as the Monthly Review published by that society. E. G. L.

"CONTACT COPPER PLATE ON ALUMINUM DIE CASTINGS"

(By Simple Immersion)

By L. P. Brockway, Detroit Branch.

Solutions to be used for this process follow:

No. 1.

Copper Cyanide (Cu Cn)	8 Ozs.
Sodium Cyanide (Na CN)	7 Ozs.
Sodium Hydroxide (Na OH	3 Ozs.
Water (H_2O)	1 Gal.

No. 2.

Copper Cyanide (Cu CN)	6 Ozs.
Sodium Cyanide (Na CN)	7½ Ozs.
Sodium Hydroxide (Na OH)	2 Ozs.
Water (H_2O)	1 Gal.

The work is handled in crockery baskets and solution No. 1 is used to get the deposit of copper and No. 2 to get the color. The work is run through a regular cleaner and then through a bright dip composed of 2 parts Sulphuric Acid (H_2SO_4 and 1 part of Nitric Acid (HNO_3) rinsed in running water and then into a 20 per cent solution of Sodium Hydroxide (Na OH) to neutralize the acid; this will take about two minutes. It is now immersed in No. 1 solution for about three minutes and then directly into No 2 for two minutes and from there into boiling water for about three minutes. It is very important that the water be clean and boiling and also that the work be left in it long enough. If this is not done the work is liable to streak and tarnish. We dry this work in a Tolhurst centrifugal dryer.

This solution is only good for about two days' run and it is therefore advisable to make up as small a quantity as is necessary to do the work. In operation it becomes depleted in Copper and it will be necessary to add a small amount of Copper Cyanide (Cu CN) to keep up the color. If the color is too dense add a little Sodium Cyanide (Na CN).

On the plate thus obtained, acid Copper or Nickel can be deposited with very good results.

Johnnie Jones was doing penance in the corner. Presently he thought aloud pensively. "I can't help it if I'm not perfect," he sighed. "I've heard of only one perfect boy in my whole life." "Who was that?" his father asked, thinking to point out a moral. "You," came the reply plaintively, "when you were little."

"ELIMINATING THE NICKEL ITCH"

By George Kutzen,
With the Ford Motor Co., Detroit, Mich.

About three years ago I became associated with one of the plating departments where brass plating was being discarded in favor of nickel. Single nickel salt solutions were installed, consisting of nickel sulphate 8 ozs., boric acid 2 ozs., common salt 1 oz., epsom salts 2 ozs., and water one gallon.

Two or three months later a couple of men complained about their arms itching, especially at night; this in spite of the fact that the workmen were supplied with rubber gloves, aprons and boots while at work I told them to wash their arms with 1% solution of Lysol and to apply carbolic vaseline before retiring and before starting to work.

There were no more complaints for awhile, then, due to increased production and limited space, we gradually built up the above solutions until they continued twice the above proportions; by which we were enabled to cut the running time 30 per cent and eliminate one shift of eight hours. Then the complaints started again.

The shop physicians treated the affected men with numerous remedies for skin eruptions, but without beneficial results which made it necessary to transfer the sufferer to a dry job for relief. The ailment seemed to have different degrees of seriousness. Some of the men recovered speedily and were soon back at work and not troubled afterwards; while with some who had it seriously it spread from the arms to the neck and finally to the muscles surrounding the eyes. When this stage was reached the patient would hardly be able to open his eyes after being asleep for any length of time.

We were having great difficulty in keeping sufficient men at work and were losing an average of about ten a month. Upon inquiry to different parties in regard to this troublesome complaint, no one seemed to know of a sure remedy. On inquiry to Mr. George Hogoboom he informed us that some of the eastern plants were having the same trouble and had observed that dark complected help were not so easily affected. We immediately got busy and changed colors, but the "pesky" itch kept the men busy just the same. We had the men rub carbolic salve into the pores of their hands and arms before starting work, but without encouraging results.

About this time it happened that certain malleable parts were coming through to be zinc-plated and having about two tons of Zinc Chloride in stock we used some of it in making up a zinc bath, deciding that the following proportions gave the best results: zinc chloride 1½ lbs., powdered ammonium chloride ¾ lb., glucose

2 ozs., water 1 gallon. We removed the zinc anodes each night and replaced them in the bath the following morning. One of the men when removing the anodes one night, without using rubber gloves, immersed his hands and part of his arms in the bath. We cautioned him against this and had him wash his hands and arms with a saturated solution of bicarbonate of soda, after which he put rubber gloves on and resumed work. Two days after he began to complain of sore and itching arms and hands and on the third day pieces of skin could be removed by scratching. We at once turned him over to the plant Medical Department for treatment and disposal.

Then a light seemed to dawn on the writer as follows: While we did not have any zinc chloride in the nickel bath we did have sodium chloride (Salt). Following the course indicated, we cleaned out the sediment from one nickel tank and replaced the solution necessary, using nickel sulphate only. We then put one new man and one having but a slight attack of the itch at work on this particular tank. We kept replenishing this bath with nickel sulphate and water when necessary and the men operating it were not bothered with the itch.

However, it was now necessary to use a pressure of three volts where previously two and a half had been sufficient. We then added ½ oz. of sal ammoniac to the gallon and received a heavy enough deposit at two and a half volts; but our old enemy Mr. Itch came back on the job. We were then thoroughly satisfied that the element CHLORINE was responsible for our trouble and upon having all the baths cleaned out and replaced with nickel sulphate and water, same standing between 10 and 12 degrees Beaume, gradually Mr. Nickel Itch disappeared.

P. S. Of course, we still are troubled with cases of caustic soda burns due to our inability to get an efficient mild cleaner for some of our work.

ANNOUNCEMENT

Chas. H. Kewell Co., 437 Market St., San Francisco, Cal., manufacturers of angling specialties, are desirous of going into the electro-plating business.

They desire to interest a plater who is competent to figure jobs and take complete charge, and who can invest in company. The company is represented as a growing concern. If interested, write to above address.

The business of being brothers is one of the most profitable kinds of business in which any man can engage.

"SUCCESSFUL METHODS"

For using up scrap nickel anodes a method practised by the writer is to have wooden partitions ½" thick with ⅜" holes bored ½" apart built into a barrel plating tank 2" from the sides, the entire length. Two anodes, or old racks that have been heavily plated, are hung from the anode rods into these pockets for connections. Scrap or broken anodes are then placed in these pockets For acid copper tanks the same system is used. Old nickel racks can be used for connections and same will not corrode as readily in acid copper bath, thereby lasting longer, or of course whole copper anodes can be used for connections.

For cyanide copper tanks the same method is used except that baskets 2" wide made from iron netting are hung with hooks to anode rods, then filled with scrap copper. For Silver solutions we accomplish the results by using Nicrome wire baskets and Bakelite pots

In this connection if Lovering's "Magic Fluid" is used in the nickel bath there will result excellent anode corrosion at a minimum voltage, the impurities all falling to the bottom of the pockets above described.

Manufacturers take notice: Nickel tanks could be built with partitions as described running their entire length and the idea is not patented.

A successful method for corroding inactive nickel anodes and for dissolving the nickel hydroxide is to add some of Lovering's "MAGIC FLUID" to your nickel solution. It will soften your nickel anodes and increase your deposit. 1¼ ozs. to the gallon is used. The "MAGIC FLUID" is Hydrofluoric Acid. It will clarify your solution and will not decrease the cathode efficiency the way sulphuric acid does If you wish to neutralize the free acid, use magnesium chloride.

A silver strike used by the writer is made from the drippings and rinse water from the regular silver solution. Used boiling hot and stong in caustic soda. We plate thousands of pieces daily in the hot silver solution.

E. G. L.

We get faster and better deposits from our mechanical plating barrels with solutions standing at 30 Beaume and current 10 to 12 volts, than we used to get at 10 to 12 Beaume and at 6 volts.

Wooden plugs to hold mechanical plating barrel parts together last three times as long as iron fastenings and effect savings in both power and current.

"SUCCESSFUL METHODS"

Ball tumbling with correct sized balls add to both inside and outside appearance of nickel-plated articles.

Not advisable to use soap in tumbling barrels in the cleaning of work for plating; better results are had with "Soda Ash Cleaner" and Sodium Cyanide on both iron and brass, but care must be taken that brass articles are not long enough to oxidize or tarnish as same is difficult to remove.

J. H. F.

In one of our larger plating rooms the following method of treating solution sores has been very successful:

Sores from Acid Copper Solution—If affected parts are deeply attacked the core must be removed or cut out, then the part treated with Iodine. If only skin deep—Iodine alone without cutting.

Sores from Nickel Solution—Parts affected are swabbed with medicated gauze saturated with alcohol and then a salve applied composed of the following:

Lead Acetate (sugar of lead)	¼ part.
Lapoline (Petrolatum)	1¾ parts.

Sores from Cyanide and Alkali Solutions—Salve made of the following:

Lead Acetate	1/6 part.
Lapoline	⅔ part.
Glycerine	1/6 part.

It is no longer an unsolved problem to correctly and scientifically determine the surface measurement of irregularly shaped surfaces. This can now be done by using the recently devised "Heil Foot Ammeter." This is only one of the many time and trouble saving uses of this versatile instrument.

E. G. L.

A method of plating and treating oil tempered and drawn steel springs so that they will not break in test and use is as follows:

The springs are tumbled in a solution of soda ash, then pickled in hot muriatic acid to remove scale and rinsed, then run through a cyanide dip, rinsed, run through the mechanical plater, rinsed, then run through a hot neutral soap solution. They are then placed in pans and heated in an oven at a temparature of 400 degrees F. Light springs are heated 15 minutes and heavy ones 30 minutes. The object of heating is to expel the hydrogen. This method has reduced breakage on 95 per cent to less than 1 per cent.

H. P. B.

"SUCCESSFUL METHODS"

TEMPERATURE CONTROL IN CLEANSING SOLUTIONS

By Sylvester P. Gartland,
First Vice-President, American Electro-Platers' Society.

The success or failure of quality plating is dependent largely on the cleanliness of the parts to be plated before being immersed in the electro-plating bath. While the use of cleansing solutions to remove oils, grease, and other foreign matter from the surfaces of the metal parts is now becoming a universal operation in plating rooms its purpose may be handicapped if particular attention is not given to the composition of the solution used as well as the temperature of the bath and the uniform control of this temperature.

In large commercial plants tests and analyses of solution are made at definite intervals to make sure that the physical and chemical properties of the cleansing solution are up to standard.

With the electrical and mechanical cleaners now available, we have an opportunity to study in a scientific way and to standardize not only on strength of solutions but also on the proper temperature at which the solution should be held in order to obtain the best results.

It is a comparatively easy task to test the cleansing solution and to strengthen or weaken the solution as the case may be, in order to bring it to standard strength. It is a more difficult task however, to manually maintain uniform temperatures in the bath due to many factors over which the operator has little or no control. These include variation in main line steam pressures, radiation losses, room temperatures, size and temperature of the material being cleansed. It would require the constant attention of an operator to manually manipulate the steam valves, in order to maintain uniform temperatures in the tank. Should the temperatures fall below that which is considered the most efficient, the oils, grease, etc., would not be heated to a point where they would be removed from the metal parts. On the other hand if the temperatures rise too high there is a considerable waste of steam and the concentration of the solution will be changed.

It was because of the foregoing facts that we installed in each of our cleansing tanks an automatic temperature regulator. The steam valve is provided with a diaphragm top and connected at a convenient distance from the steam coils. The valve is operated by compressed air. That is, connection is made to the regulator from a compressed air supply line and a second connection is made between the regulator and the diaphragm top of the valve. The regulator is set for the desired bath temperature and until this temperature is reached the steam valve is open. As soon as this temperature has been reached, however, the expansion of the sensitive member opens a small valve within the regulator and

allows compressed air to reach the diaphragm top of the valve, thereby, closing it. In actual operation the valve is continually throttling; that is, it is open an amount sufficient to allow steam to flow into the tank to maintain the temperature for which the regulator is set.

These regulators have operated very successfully for the past ten years in our cleansing tanks. We have received more rapid and successful cleansing since their installation.

It is desirable to use steel tanks with the steam coils on the side for solution cleansing baths. The coils are so arranged that the top coil is at least 3 inches below the top of the tank. In the bottom, close to the end of the tank, is provided a drain pipe. Connection through the tank is made by drilling a 1¼ inch hole and inserting in this opening 1 1/16 tapered steel pipe for making a tight joint.

By tilting the tank slightly toward the outlet the floating substances that usually accumulate in these tanks will easily be removed.

When an electric cleaner is used the connections to and from the regulator must be insulated from the tank, so as to prevent current from passing to the regulator. The control temperatures may easily be changed by the adjustment provided at the graduated dial of the regulator.

Mr. H. H. Williams, Detroit, Mich., February 16th, 1920.
St. Louis, Mo.

Dear Friend, Mr. Williams:—

I trust that you received my report and papers for the "SUCCESSFUL METHOD" page in time for the next issue of the Review. Personally, I believe that the President of each branch should make it a point at meetings under "Good of the Order" to call upon members present to testify and give a personal description of a successful method he has worked out in his individual plant.

Every Plater has his own original way of producing results, and I believe the President of each branch can get it out of the members, if he will interest himself, and make it a point to call on them, and if each Secretary will go more into detail in reporting what transpires at each meeting, we would get some good reading matter for the Review.

Yours for the furtherance of the aims of the A. E. S.,

E. G. LOVERING, Secretary,
Detroit Branch.

PLATING PLASTER OF PARIS, WOOD, ETC.

By Chas. O. Warft,
Read at Grand Rapids Banquet.

In plating of Plaster of Paris, this is not a hard proposition if care is taken in the different processess through which the statue passes before it can be successfu'ly plated

First, the statue should be thoroughly dry, for if not dry the next step taken will be of no avail. It should be placed in any kind of hot wax, and the statue left in this until the bubbles which appear, stop coming to the surface, which will indicate that the statue is saturated with wax. The idea of using wax is to make the plaster of paris waterproof, for if not waterproof the plaster of paris will crack while plating After thoroughly waxed, it should be left to cool; it is then given a coat of shellac, pine shellac being used. Then set aside to dry, care must be taken that the shellac is thin, as thick shellac will leave ridges. After the shellac is thoroughly dry, it is then sprayed with a copper lining powder, and care should be taken that coppered powder is free from oil and grease, as copper powder that has these matters in them, retard the plating.

The powder is held on the statue with a binder, a straight cotton lacquer being used—¼ Lacquer and ¾ Thinner. Pour this in a pint jar along with 2 oz. Coppered Powder and mix thoroughly, then use a spray. Care should be taken that statue is coated all over with the powder mixture, then set aside to dry.

It is then coated with a tin powder. This is not essential in its use, only to detect that the statue is thoroughly sprayed with coppered powder. After the statue is dry, it is then sprayed with a coppered powder, which is the last coat. Here the tin powder comes in for its use, in detecting any uncovered spots. It is then dried, and when dry, take fine copper wire around statue; care should be taken that the winding does not scratch off the copper powder; if it does, it should be touched up with a camel hair brush. The wire should be wound very loosely, so as to not become plated to the statue.

After this is done take two feed wires and wind around statue loosely. As plaster of paris will float they should be weighted down in solution. The solution is the well known duplex acid copper, made up as follows: Water 1 gal., sulphate of copper 1¾ lbs., sulphuric acid 3 ozs. The solution should stand 15 degrees on hydrometer before acid is added, after acid is added it should stand 18 degrees, the solution should be agitated with air to give a more uniform plate. If during the plating the anodes become covered with a dark slime or powder, 1 oz. Dextrine White to every 5 gallons of solution is added to overcome this difficulty. Use 1 volt at first and when tank is filled 2 volts can be used. When statue has been plated for one hour, take it out and rinse in clean water and dry off with cloth or air pressure, but do not use sawdust as it will injure the plate which is very thin. The statue should not be taken out of solution too often; each time statue is plated a separate coat of copper is plated on it. These operations can be repeated until there is a sufficient plate, then finished by oxidizing or buffing.

WHAT THE BRANCHES ARE DOING

Detroit.

Meets first Friday in each month at Cass Technical High School, Platers' Classroom, 2nd Avenue and Beech Street, at 8 p. m. Secretary, E. G. Lovering, 562a Grand River Avenue, Detroit, Mich.

At our regular meeting, held February 6th, the members of Detroit Branch entered into the "Spirit of 1920" and made this meeting one in which enthusiasm reigned supreme; and when we adjourned it was long past our regular hour. This Branch has a rule to hurry through the regular business and spend most of the time on "good of the order" and, believe me, there were a lot of god things on order at this meeting.

We had arranged to make this meeting a Review of 1919, and to bring out a few "Successful Methods" and I can see myself getting writer's cramp if I attempt to recount all the good things that were brought to light.

It seems that every plater has something "up his sleeve" and we think Editor Williams has hit upon a novel method of inducing them to unfold their "secrets." Detroit Branch is determined to do their part, or a little more if necessary, to make every reader of the "Review" look forward for that "Successful Methods" page and if the other branches will fall in line the Editor will not have to resort to his old standby, poetry, to fill up the pages of the "Review."

Mr. L. P. Brockway of the Ford Motor Co. exhibited samples of aluminum done by his immersion process which were very fine. Anyone interested and wishing samples can have them by addressing Mr Brockway.

Samples of heavy nickel-plating in "Magic Fluid" were also shown.

Mr. H. P. Brockway gave us a most interesting talk on plating and treatment of oil tempered springs so as to remove the hydrogen that is absorbed during the processes of pickling and plating.

Mr. Fritz and Mr. Thompkins brought out some good stuff on rinse tanks.

Mr. George Kutzen's paper on eliminating the nickel itch showed some deep thinking on this important subject and we hope the entire society will receive the benefit of its publication.

Mr. John H. Flanagan's contribution of "Successful Methods" was highly appreciated.

Mr. A T. Wagner referred to the elimination of fumes from pickling solutions. These papers will all be submitted to the "Successful Methods" page.

Mr A. E. Shepherd exhibited one of Mr. Heil's Foot Ammeters and as this was new to most of the members we had quite a lot of discussion as to its merits.

Our next meeting will be held in conjunction with our Smoker and Lunch on March 6th at the Hotel Fort Shelby, to which every plater in Detroit will be welcome.

Grand Rapids.

Meets on the second Wednesday of the month at The Morton House Secretary, Alex. Rickson, 1350 Turner Avenue, Grand Rapids, Mich.

Our regular meeting held on February 11th was called to order by Vice-President Chas. S. Whalley with nine members present. The minutes of previous meetings were approved. Application for membership from Mr. McMeekin was not accepted, as he did not qualify under our present law. It was decided to postpone discussions of the evening until the night of the banquet.

The annual banquet was held on February 14th and was well attended. Mr. Allen was the toastmaster for the occasion, so that part was well handled. Mr. Whalley, our vice-president, gave a splendid talk on progress of the branch and benefits derived from membership in the American Electro-Platers' Society. Mr. Chas. O. Werft read a paper on "Plating Plaster of Paris, Wood, Etc." (this will be found on another page)

The rest of the evening was spent in regular banquet style (?) and at the finish it was well with three cheers for the American Electro-Platers' Society.

Toronto.

Meets second Thursday of each month at Occident Hall, Bathurst and Queen Streets. Secretary, Oswald Holtham, 245 University Ave., Toronto, Ont.

The February meeting was called to order by President Magill. A fair attendance was recorded.

An application from Mr. Albert William Picton was received and referred to Board of Managers.

Carbonates in solutions were again discussed by the members present.

What is a good black dip on iron? A process with the use of saltpeter was explained by a member.

The subject previously chosen for discussion was "The Agitation of Solutions." A good discussion followed, all members taking part

Mr. Magill explained a process of [illegible] and filtration, which was of interest to the members present.

Milwaukee.

Meets first Friday of each month at West Side Bank Building. Secretary, A. W. Ruttan, 1105 Twenty-eighth St., Milwaukee, Wis.

For the Review. At our last meeting there was quite a discussion relative to forming a class in electro-chemistry. The members of the Milwaukee Branch believe in being right up to date in everything pertaining to their vocation and it will not be surprising if we have a class of about twenty or more in the near future studying the branches of chemistry pertaining to our trade. Several of our members are going to the banquet of the Chicago Branch February 21st.

Pittsburgh.

Meets every first Saturday at 8 p. m. at United States Bureau of Mines Building, Forbes St. Secretary S. E. Hedden, 227 5th St., Aspinwall, Pa.

Our meeting of Saturday, February 7th, was opened with Vice-president Louis Schulte in the chair, in the absence of President John Corbit, who was unable to attend. After the regular business session and the election of Mr. Charles Smith to active membership the balance of the evening was taken up by Banquet Committee. Everything now points to a good time the evening of April 17th next, when our branch will be one year old. We had some discussion regarding the electro-galvanizing of aluminum. Mr. A. Kantrowitz stated that he had had some experience along this line, but owing to the late hour he was requested to put his experience in writing.

Providence-Attleboro.

Meets first and third Thursdays of each month at 26 Custom House Street, Room 16. Secretary, Clayton J. Poyton, 269 Ohio Avenue, Providence, R. I.

Our first meeting in January was held on the first of the new year. Our membership is scattered over a large territory and weather conditions being very unfavorable our attendance was light.

The main topic of conversation was the banquet, which, from all points of view, was a success.

Our second meeting in January was held in Attleboro on January 15 and was very well attended.

The following were received as members: Fred Franz, Dennie Ledoux, Charles Audette, Peter Winberg, Fred Gethro, Wm. Nixon, John Henry.

The subject of the evening was Imitating Aluminum on different metals. Several members spoke of the experience with aluminum and samples were shown which very closely resembled that metal. Cadmiun zinc salts produced best results.

Secretary Lemrise, owing to pressure of business, found it necessary to resign from the office he has filled so long and faithfully. His resignation was acted upon and regretfully accepted.

Carlton J. Poyton was elected to fill the office of Secretary and Treasurer, with Harry Sholes as assistant.

The subject for discussion at the first meeting in February will be Valence. Our Honorary President, Dr. Claflin, has consented to enlighten us in the uses of same.

The motion to adjourn was seconded at 10:30.

Our next meeting will be held in Providence, February 5.

Philadelphia.

Meets first Friday of each month in the Harrison Laboratory Building, University of Pennsylvania, 34th and Spruce Sts. Secretary, Philip Uhl, 2432 North 29th St., Philadelphia.

Rochester.

Meets on the fourth Fridays. Secretary, Sylvester Gartland, 128 Bryan Street, Rochester, N. Y.

It was some little Valentine party that members of Rochester Branch gave to their wives and best girls in the blue room of the Hotel Seneca, Saturday evening, Feb. 14th, 1920. It was the seventh annual banquet of the society with special emphasis on the fact that it would be of more than ordinary moment inasmuch as plans would be announced for the holding of the eighth annual convention of the national body in Rochester, June 30th and July 1st, 2nd and 3rd, 1920.

Upwards of eighty persons attended the affair, among them some thirty or more ladies. Of course, there was an ulterior motive in admitting the womenfolk to the function this year—that of consulting with them as to the arrangements for entertaining wives of delegates who will attend the forthcoming convention.

President George Hesselink presided at the dinner and there were brief after-dinner talks by A. A. Ruttan, general manager of Premo Division of the Eastman Kodak Company. The subject of his talk was the American Constitution. Sylvester P. Gartland explained the principles of the American Electro-Platers' Society and announced the convention committees (names of committees on back cover).

The President called on H. C. Bernard, R. P. Lopez, R. K. Hutchings, E. Crowley and T. E. Sturdevant for remarks. Syracuse Branch was represented by Messrs. Murray and Crane. New York, by Messrs. Niles and Hoyte. Everyone was provided with elaborate festive headgear with special hats for the women, and everyone received some artistic and useful souvenir.

There was an orchestra and singing led by W. F. Johnson, employment manager of Taylor Instrument Companies. A beautiful mandolin selection was rendered by H. C. Bernard and R. K. Hutchings accompanied by Mrs. R. K. Hutchings at the piano. After the entertainment and frivolity was over there was much talk about the serious business of engineering the coming convention, with special work and lots of it for the women. But the women seemed to relish this latter idea even as much as they had all the kindness and attention which they had received earlier in the evening.

It might be mentioned in passing, that the souvenirs for the men consisted of nickel-mounted ash trays and a valuable text book on the cleaning and electro-plating of metals. The ladies received hand-painted bonbon dishes of egg-shell china provided by the members of Rochester Branch.

The arrangements for the banquet were in charge of a committee composed of R. K. Hutchings, R. P. Lopez and Chas. Griffn.

Last year's convention in Philadelphia was some convention, but Rochester plans to go Philadelphia one better this year and show the members at large how a regular first-class better-than-ever convention really ought to be held The Ladies' Auxiliary gives promise to have a program outlined for the liveliest convention the American Electro-Platers' Society has ever held.

Syracuse.

Meets second and fourth Fridays of each month at Y. M. C. A. Building, at 8 p. m. Secretary, Martin A. Crean, 109 Court St., Syracuse, N. Y.

Syracuse Branch met Friday evening, January 23, 1920, President Norgen in the chair.

At this meeting President Norgen presented his resignation as President of Syracuse Branch, as he has accepted a position with the Lincoln Motor Co. of Detroit, Mich.

It was with regret that his resignation was accepted, as Mr. Norgen was a very active worker for the society and our president since its organization.

Mr. Philip J. Murray wa selected to succeed Mr. Norgen as president for the remainder of the year.

Mr. Martin A. Crean was elected secretary-treasurer for the remainder of the year. All communications should be addressed to him in the future.

We had two visitors at our meeting, Mr. Ray B. Smith of Little Falls, N. Y., one of our long-distance members, and Mr. Thomas Hoyt of New York Branch.

A question was brought up at this meeting as to the best method of copper-plating bicycle hubs for the hardening process, and the opinion of all was to strike in cyanide copper solution, then transfer to acid copper solution until the required thickness was obtained to protect the steel from hardening.

The application of Mr. Peter Wingerter of the Standard Lock Co., Syracuse, N. Y., was accepted and he was elected to membership. Mr. Wingerter has been 32 years at the plating game.

Chicago.

Meets second Saturday of each month, 8 p. m., at the Briggs House, Randolph and Wells Sts. Secretary, C. E. Thornton, 948 Leclaire Ave., Chicago, Ill.

Our last regular meeting was held February 14th, with thirty-five members present.

The banquet committee reported that it had been found necessary to postpone the banquet one week, making the date February 28th instead of the 21st as originally announced.

The subject for discussion was nickel chloride, which proved very interesting.

The following questions were asked and discussed:

Question No. 1. How much free cyanide is required in a hot copper solution containing 3 oz. metallic copper per gallon? Also what temperature is required?

Answer: About 3 oz. free cyanide per gallon, and temperature not to 150° F.

Question No. 2. Which is the better conducting salt, magnesium sulphate or ammonium sulphate?

Answer: It was agreed that magnesium sulphate is the better of the two.

Question No. 3. What is a good nickel solution for plating die castings?

Answer: 10 oz. double Nickel Salts, 2 oz. Boric Acid, 2 oz. Magnesium Sulphate, with 3 volts, and carthode-rod should be agitated.

Question No. 4. What is the best way to make nickel chloride, and what is the best way to neutralize a nickel solution?

Answer: The best way to make nickel chloride is to add barium chloride to a solution of nickel sulphate. This will precipitate all the sulphate and convert the nickel into nickel chloride which can be poured off and the precipitate which is barium sulphate removed.

The best thing to use to neutralize a nickel solution is nickel carbonate.

Question No. 5. It is said that aluminum dipped into a solution of diluted hydrochloric acid which contains 1 per cent of perchloride of iron for one-half minute can be nickel plated. How dilute must the hydrochloric acid solution be?

Answer: A 50 per cent solution of hydrochloride acid will work satisfactory.

Question No. 6. Why does a hydrochloric acid pickle give a red color to iron after it has been used a short time? Qualitative analysis showed the absence of copper.

Answer: This question was not answered, and we hope to hear from some of the other branches on this subject.

St. Louis.

Meets third Saturday of each month at Barr Branch Library, corner Jefferson and Lafayette. Secretary, H. H. Williams, 4256 Botanical Ave., St. Louis, Mo.

Regular meeting held February 21st was called to order by President Deubelbeis. F. C. Rushton was appointed Secretary pro tem. The banquet committee, through E. J. Musick, the chairman, reported plans for banquet on March 6th complete, and requested that reservations be made at once.

The librarian took charge of meeting which resulted in discussion on brighteners, also the use of the [illegible]ic acid in nickel solutions.

APPLICATIONS FOR MEMBERSHIP

Pittsburgh.

D. G. Ludwig (active)
715 Lowrie Lane, Millvale Borough, Pittsburgh, Pa.

Chicago.

Ernest J. Horst.....728 N. 5th St., Lyons, Ia.
Ovide J. Bedard.....528 N. Taylor St., Oak Park, Ill.

Providence-Attleboro.

Louis Schnerer.....Broad St., N. Attleboro Mass.
Wm. Brown.....

Toronto.

Albert William Picton.....Toronto, Ont.

ELECTED TO MEMBERSHIP

Providence-Attleboro.

Fred Franz (active).....25 Hayward St., Attleboro, Mass.
Wm P. Nixon (active).....10 Oakland St., Attleboro, Mass.
Peter Winberg (active).....373 Fourth St., Attleboro, Mass.
John T. Henry (active).....8 Tappan Ave., Attleboro, Mass.
Chas L. Audette (active).....15 Falmouth St., Attleboro, Mass.
Dennis A. J. Ledoux (active)..583 Central Ave, Pawtucket, R. I.

Toronto.

Alex Armstrong (active).....78 Fern Ave., Toronto, Ont.

Syracuse.

Peter Wingirter (active).....Standard Lock Co., Syracuse, N. Y.

Pittsburgh.

Chas. Smith (active).....Edenvale St., N. S., Pittsburgh, Pa.

New York.

Elias Schor (active.....660 Dawson St., Bronx, New York City.
Geo. Albert Wilson (active)....439 West 22nd St., New York City

Chicago.

R. C. Schaefer (active).....554 East 92nd St., Chicago, Ill.
R. M. Goodsell (active) (reinstated)—
70 Packard Ave, Grand Rapids, Mich.

TRANSFERRED

F. L. Greenwald (active).....from Cleveland to Chicago Branch
Henry Lanz.....from Grand Rapids to Chicago Branch

COMMITTEES FOR EIGHTH NATIONAL CONVENTION AMERICAN ELECTRO-PLATERS' SOCIETY

To Be Held at Hotel Seneca, Rochester, New York
June 30th, July 1, 2, 3, 1920

PRESIDENT AND CHAIRMAN

G. H. Hesselink

SECRETARY AND TREASURER

S. P. Gartland, 128 Bryan Street

PROGRAM AND PUBLICITY

H. C. Bernard, Chairman; R. P. Lopez, F. Speary, R. K. Hutchings, C. Puffer, E. Crowley, C. Griffen, A. Wahl.

EXHIBITS

A. Wahl, Chairman; E. Troxler, A. Cameron, C. White.

RECEPTION

R. K. Hutchings, Chairman; A. Doering, B. Groh, T. Jordan.

ENTERTAINMENT

R. P. Lopez, Chairman; R. K. Hutchings, E. Crowley, L. E. Sturdevant, C. O Fields, D. Harper, K. Blum.

INFORMATION

F. Speary, Chairman; L. Breithaupt, R. Schneider, C. Kellerman

HOTEL

C. Griffen, Chairman; C. Feltz, J. Jordan, E. Fitch.

EDUCATIONAL

C. Puffer, Chairman; F. Kolb, J. J. Desmond.

BADGES AND PRINTING

E. Crowley, Chairman; E. Beaudry, J. Michels.